VIEWS ON THE NAMING OF HAWORTHIAS.

(With Plate IX).

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During the last 18 years or so, several botanists have from time to time published work on the Genus Haworthia. Without field experience of this very polymorphic genus, much of the work done has simply added to the already very confused position. To show the consequences of lack of field experience, I quote a few examples. In the Cactus Journal, Vol. 8 of 1939, on page 19, the late Dr. Karl von Poellnitz described a new species—*Haworthia Venteri*. According to the description, " the margins and keels of the leaf are mostly completely smooth, rarely with very few minute teeth-like tubercles seen only under a strong lens. Fig. 1 shows *H. Venteri* collected by myself from, according to Lt. Col. H. Venter, the type locality. It will be observed that while the plants are similar in size, and that the leaves are the same size, shape and colour, the one plant has a number of large (by no means minute) teeth on the margins and keel(s), while the other plant has leaves entire. The plants grow socially and flower at the same time, not only at the type locality, but also in several other localities in the Swellendam and Riversdale districts. When I mentioned that I had found the toothed and the entire leafed plants growing together, Lt. Col. Venter said he had noticed the two, but had not collected the toothed ones. It only remained for some other collector to send some of the toothed plants over, when we would have had another species or variety added to the already overburdened list of Haworthia names. At this stage I would mention the strange fact that the 4 new plants found by Lt. Col. Venter, are all recorded from the 4 districts—Worcester, Swellendam, Caledon and Bredasdorp.

On referring to the photo on page 18, and to the remark at the end of the description that " the innermost leaves of the plant shown in the photograph lengthened during the journey," one realises why it is impossible to determine so many Haworthias from descriptions and photographs by Dr. von Poellnitz.

Another example of describing and photographing a plant immediately after a long journey, is *H. paradoxa* v.P., in Fed. Rep. XXXIII (1933)

240. I have the original letter from Dr. von Poellnitz to Mrs. Ferguson of Riversdale, acknowledging the receipt of this plant. It reads as follows :— " Dear Mrs. Ferguson, Indeed the Haworthia from Vermaaklikheid (Riversdale Div.), is a new species. I received it yesterday. I called it *Haworthia paradoxa* v.P. Today I sent the description to Professor Fedde, Dahlem, that he may print it." Here we have an example of a plant arriving one day and the description and photograph being sent off the next day to the publishers. I defy anyone to determine *H. Venteri* from the description and photograph referred to above. Even if Haworthias have not had a long journey, it is never advisable to base descriptions or photographs on one or two plants ; it is also often necessary to make some field investigations before telling the world about it. Another similar example is in regard to *H. notabilis* v.P. This plant is described as having a completely smooth end-surface, only very seldom with a single pellucid tooth. I was taken to the type locality by Mr. Payne, the discoverer of this species, and there we found plants with completely smooth end-surface growing with plants identical in all respects, except that the end-surface was beset with many raised concolorous toothed tubercles. See my fig. 2 and 3.

H. Parksiana v.P. is described in Fed. Rep. XLI (1937) 205, and the description concludes with the following statement :— " Locality and discoverer unknown, Parks 636/32, Long—Port Elizabeth 352." Major Long, at that time Director of *Parks and Gardens*, Port Elizabeth, had a private collection of Haworthias which he recorded under numbers preceded by his name, thus—" Long-352 ". The plants belonging to the Parks were similarly recorded thus—" Parks-636/32 ". In Desert Plant Life X (1938) 48, Dr. von Poellnitz concludes his description of *H. Parksiana* with the following words :— " Type locality unknown . . . . This species is named in honour of *Mrs. Parks*, a keen collector of succulent plants ". Dr. von Poellnitz certainly never got this information from Major Long, who was responsible for sending the plant, and the origin of " Mrs. Parks, the keen collector of succulent plants," is a mystery.

I have referred to only a few instances, and while they may sound amusing, they are, to say the least, very annoying, and show just how the confusion is brought about.

In the *Cactus Journal* VI (1938) 66-68, R. S. Farden publishes work on " *H. attenuata*, its varieties and its near relations ". Illustrations of leaves showing back and face of 11 varieties are given with a brief description of each. In Vol. VIII (1939) 34-38, he writes :— " In the *Cactus Journal*, Vol. 6, No. 4, June 1939 (should be 1938) I published a series of varieties of *H. attenuata* Haw. Dr. von Poellnitz wrote me and said that it could not be accepted by botanists in that form, that of being designated by letters, and would I repeat it in proper form, so I have done so and, in the interim, through searching in all sources, in Europe and S. Africa, I have got together others as well, as specified below." Then follow the illustrations of leaves (face and back) and brief descriptions of 19 varieties.

The claims made on the sizes and shapes of the leaves, and on the size and disposition of the tubercles, are, to say the least, absurd. In an area of about 200 by 50 yards on the slopes of the Fish River, in the Albany district, one can go on almost indefinitely picking out leaves with the differences on which Farden separates varieties. I would go so far as to say that on the basis on which Farden is working, there would be no difficulty in making two or more varieties of plants from the same clump. If one went further afield and included the many localities for *H. attenuata* and its varieties in the Grahamstown, Port Elizabeth, Uitenhage, Alice, King Williams Town and Peddie Districts, and worked on the basis on which Farden has done, we would end up with a fair sized volume devoted entirely to *H. attenuata* and its varieties. But what value would it have ?

In *Suculentas Africanas*, Dr. Flavio Resende, himself and with collaborators, has from time to time published work on the Genus Haworthia. In Vol. XI (1942) 49-55, he and Dr. von Poellnitz published 7 new varieties of *H. tessellata*. Several of these are without precise locality, some having been found in gardens, others grown from seed, without locality. If this is all that is necessary, then instead of investigating plants in the field, it would be much easier to ask owners of succulent gardens to collect and send seed of their Haworthias and one would raise a wonderful collection of " species " and " varieties."

In Vol. II (1946) 175, Resende publishes a description of *H. lisbonensis*. He claims this to be a good species as it does not present forms of transition to any other species and that a study of the plants proved to him and J. Pinto-Lopes that they were dealing with a new species. This plant was found in the Botanical Gardens, Lisbon, and it is more than likely that it is a garden hybrid. In any case to call it *H. lisbonensis*, leads one to assume that it is indigenous to that area. I wonder what name he would give to a plant, probably a hybrid, found growing in a collection on a ship at sea.

On page 181, *H. Carrissoi* is described as a distinct species. This plant occurs in the same area as *H. glauca*, and according to Resende differs in the size of the leaves and the presence or absence of very small tubercles. This is certainly not sufficient difference to make this plant a variety, much less a species. It is common knowledge that the size of leaves in some species of Haworthia varies considerably, and some species in the Sect. *Coarctatae* are not exceptions. As regards tubercles, it is quite common to find smooth and tubercled leaves on the same plant. In other cases plants of the same species or variety have smooth or tubercled leaves, for example, *H. fasciata v. variabilis* v.P. If one is going to "split" as is being done by Resende in the case of *H. Carrissoi*, then at the type locality of *H. fasciata v. variabilis* one can name probably a dozen species and varieties on the slight differences that are to be found among this lot of plants. *H. Carrissoi* is certainly not a species, nor even a good variety. It is at the most a locality form of *H. glauca*, and will have to be reduced to synonymy.

On page 188, Dr. Resende states :— " The fact of it (*H. Cassytha*) not flowering indicates its hybrid origin ". Does this imply that Haworthia hybrids do not flower ? I have many field and garden hybrids which flower and produce seed.

On page 191, in regard to *H. Greenii*, he writes :— " it appears at present that there are 3 forms, i.e. forma *Bakerii* (*Bakeri*), *minor* and *pseudo-coarctata* ". The form *pseudo-coarctata* I note has had rather a gay life : first *H. Reinwardtii* var. *pseudo-coarctata* v.P., then *H. coarctata v. Haworthii forma pseudo-coarctata* (v.P.) Res., and now *H. Greenii* forma *pseudo-coarctata* Res. *H. Reinwardtii*, compared with *H. coarctata* and *H. Greenii* is a very distinct plant, and it puzzles me as to how the confusion could have taken place.

At Howiesons Poort, near Grahamstown, one finds *H. Greenii* and *H. coarctata* growing side by side, and surrounded by a mass of forms which include *Bakeri*, *minor* and *pseudo-coarctata.* (The latter, by the way, does not occur in the East London district, as recorded by Resende.) It would not be a difficult matter in this area to pick out, on the present basis of " splitting ", at least another dozen or more forms. But where would it lead us to ? He further states in regard to these 3 forms of *H. Greenii* :— " The characteristic which is specifically common to these three strains and which delimites them well from all other species of the same Section, is their light green colour, typical of this species ". There are of course other plants of this colour, but not in any way connected with *H. Greenii* and its varieties ; *H. Reinwardtii v. olivacea* G. G. Smith is one of them. This plant, like *H. Greenii* and its variety *silvicola* G. G. Smith, is olive green in colour. *H. Greenii v. silvicola* G. G. Smith occurs in the Bathurst Dist., some miles from Howiesons Poort, is quite a distinct variety, and is well isolated from other Haworthias.

In Vol. III (1943) 80, Dr. Resende writes :— " after having studied all the varieties which are today recognised in *H. Reinwardtii*, it is now not possible to maintain *H. Chalwinii* as a species ". No definite reason is given why this plant is now reduced to a variety, yet some 2 years earlier he described *H. Carrissoi* as a species, and the only difference is in the size of the leaves and the presence or absence of very small tubercles. It is very difficult to understand how, with such slight differences, *H. Carrossoi* is made a species, while *H. Chalwinii* is reduced to a variety of *H. Reinwardtii*, from which it differs so greatly in several details. In the same volume, page 93, 3 varieties of *H. limifolia* Marl. are briefly described, and the inflorescences of 2 of these are figured on page 92. The differences between the 3 varieties are in the size of the leaves, and in the length of the peduncle in relation to that of the raceme. The inflorescences of only *v. Schuldteana* and *v. Marlotheana* are figured, so I will deal with these 2 only. The comparisons from the descriptions and from the illustrations are absurd. In the case of the figure of the inflorescence of *v. Schuldteana*, the inflorescence is in its last stages, about 24 flowers having fallen, and only about 4 flowers and buds remaining at the apex of the raceme. It is claimed that the length of the raceme (including the portion where the flowers have fallen off) is longer than the peduncle, whereas in the inflorescence of *v. Marlotheana* (which inflorescence is quite new, no flowers having yet fallen), the raceme is shorter than the peduncle. It is evident that Dr. Resende is not aware of the fact that in the development of a Haworthia inflorescence, the peduncle, once the stage is reached where the first flowers commence to open, does not grow much longer, if at all, whereas the raceme continues lengthening until by the time nearly all the flowers have fallen, it may be anything up to twice as long as it was when the first flowers opened. Here again, as the leaves can vary considerably in the same plant, not much value can be attached to the differences mentioned. It would therefore seem, according to the basis on which Resende is working, that if one sees one of these 2 varieties with the raceme shorter than the peduncle, that is, at the stage of the inflorescence development when the first flower has just opened, it is var. *Marlotheana*, but a few weeks later, when practically all the flowers have fallen, and the raceme has become longer than the peduncle, it is then var. *Schuldteana*. Could anything be more ludicrous ?

I have mentioned several instances of variable forms in Haworthias, and I feel that if the erection of " new species " and " new varieties " is to continue on such slight differences, the position in regard to this genus is going to be impossible. On krantzes around East London and other parts of the country, one finds *H. cymbiformis* or its varieties. On close examination, it will be noted that in an area of a square yard, they take on several different forms. There are the huge clusters made up of many large rosettes with broad, thick, entire leaves—the result of growing in a pocket of deep rich soil, and getting possibly only the morning sun Then there are smaller clusters made up of very small compact rosettes with proportionately smaller leaves—growing in a pocket of shallow poor soil and possibly in the full days' sun. Then there are the loosely arranged clusters, made up of rosettes with long, narrow, loosely arranged, toothed leaves—growing in full shade, usually in rich soil. Must these three forms be given distinctive names, simply because they look different. It reminds one of the incident when, at the request of an overseas enthusiast, a friend of mine sent him a small Aloe. Naturally, under overseas conditions, growing in a pot and receiving much more water than it was accustomed to in the dry South African conditions in which it occurs, it grew to about twice the size that it normally attains—it was described and published as a new species—yet the plant sent was a sucker from a named species.

On the hills overlooking the Fish River, at Kaffir Drift, there is an area of about 600 by 100 yards wherein *H. Reinwardtii* grows in great profusion. Here are found plants with tubercles arranged in longitudinal and/or transverse rows, the number of rows varying considerably, some plants with the tubercles round and/or oblong, some confluent longitudinally, others confluent transversely, plants with smooth leaf faces, others with faces tubercled in transverse or longitudinal rows, the number of rows varying, tall or short plants with long or short, broad or narrow leaves, dark green and yellowish green in colour—just a bewildering maze of confusion. I made a map of the area and collected, planted, and numbered about 30 different looking plants; the position of each being shown on the map. This was 8 years ago, and I am still studying the plants and the map. All these plants are growing under identical conditions—on a stony slope, facing N.W., in full sun. In the Steytlerville district one finds the same confusion with *H. Eilyae*, *H. Jonesiae* and *H. Jacobseniana*, etc. Include all the other areas where plants in the Sect. *Coarctatae* occur (and there are many of them), including Howiesons Poort, and the advocates of naming plants on trifling differences would have a very busy time.

My own view is that no new species or new varieties should be named where the only material available is one or two plants. Also it is most essential in all cases to study the plants in the field before an attempt is made at naming. In many cases, when plants have been sent to me, I have had to make certain investigations at the locality myself before describing them. Sometimes, even in the case of plants found by myself, it has been necessary to return to the locality to make further investigations. Many plants in the Genus Haworthia are sent to me from all over South Africa for determination, and I have frequently had to query the locality given. The following example will show why so many incorrect localities are quoted in some of the overseas descriptions—a collector labels a plant with a number and locality. In time, possibly when the plants are neglected through pressure of other work, or through absence, the original plant dies and its place is taken by a seedling. This seedling, probably a hybrid, is sent away for determination and the locality recorded is that of the dead plant. Some collectors place all their plants loosely in a large carton and on their return from the trip sort out the plants to their respective localities—a most foolish practice. However, the plants are recorded under these localities. I have had *H. Reinwardtii* sent to me as from Riversdale district, and *H. retusa* from King Williams Town district, etc. etc., but my knowledge of the plants and their localities made me query the localities given, and no incorrect records were made.

Long and wide experience as a taxonomist has convinced me that in the genus Haworthia at best, opinions on systematics are likely to be of diminished value unless based partly on or correlated with the ecological aspect. My observations show that the work at long range of overseas taxonomists is hardly likely to afford any important aid in the solution of the many perplexing problems presented by this genus. When their descriptions are based on unnatural looking plants, and are accompanied by illustrations of poor quality, such work may indeed have to be ignored altogether.

The cited overseas methods of naming Haworthias (and some other genera) are merely reducing Taxonomy to a farce. Instead of contributing to the knowledge of Haworthia, such methods merely add to the existing confusion. The South African botanist finds it difficult enough to elucidate local problems, without having to cope with all the ridiculous nonsense published about them overseas. Some "Authors" will find the majority of their "species" in synonymy or ignored altogether, when the genus is monographed by one who knows what he is talking about. Overseas botanists would therefore be well advised to leave the describing of new species and varieties to some one in South Africa who knows the plants in their natural habitats, and knows how they vary in the wild state.

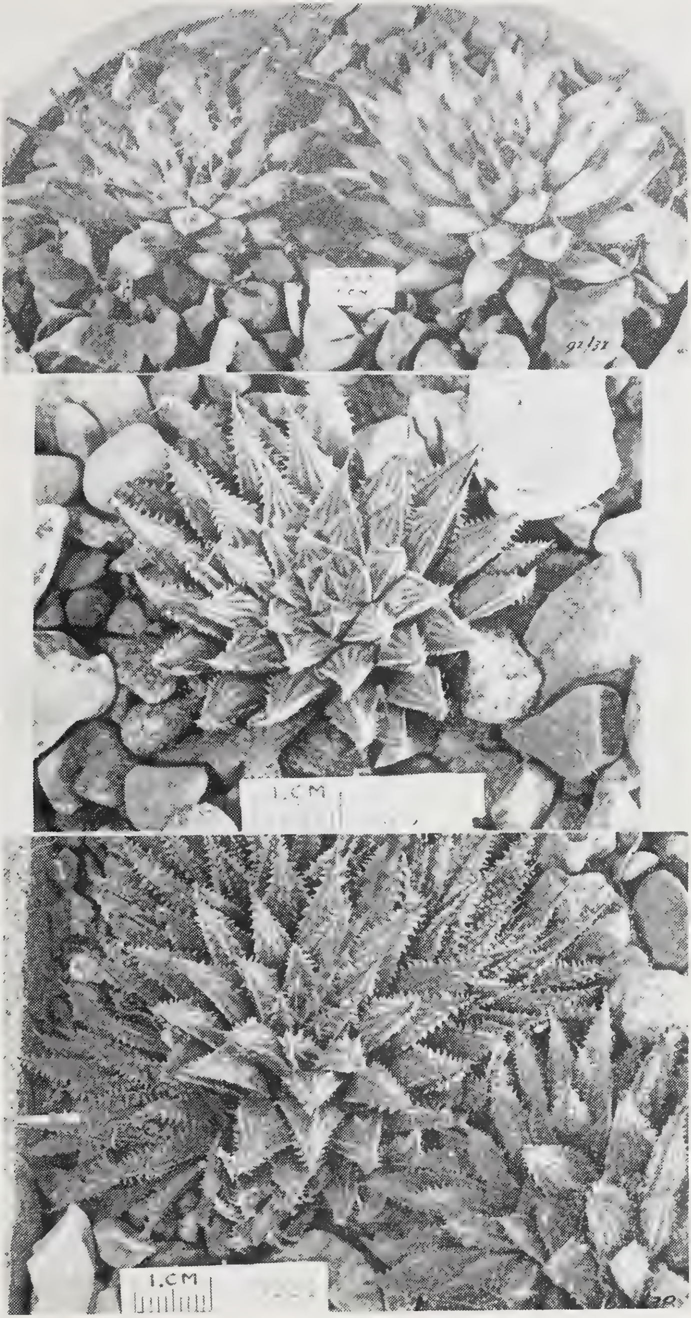

PLATE IX.

1. H. Venteri v.Poellnitz. Showing plants with toothed and entire leaves.
2. H. notabilis v. Poellnitz. Showing end-area of leaf smooth.
3. H. notabilis, showing end-area of leaf beset with toothed tubercles.